School name
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test

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surname	name	code	points

test: Chemistry

test time [min]:	30
start time:	
end time:	
basic points:	1.000
points for wrong answer:	0.000
points for no answer:	0.000
max score:	30.000

Chemistry Exam

1 S	1	The point at which solids, liquids and vapor of the substance coexist together at equilibrium is:	
	1	Critical pressure	
	2	Triple point	
	3	Critical temperature	
	4	Critical point	

2 S	1	According to Bohr, a transition of electrons from a higher energy level to n = 2 and the corresponding radiation is;	
	1	Lyman series, UV	
	2	Balmer series, infrared	
	3	Balmer series, visible	
	4	Lyman series, visible,	

3 S	1	When the ions of solute particle are surrounded by water molecule, then the process is?	
	1	Hydration	
	2	Condensation	
	3	Solvation	
	4	Hydrolysis	

4 S	1	The number of neutrons and electrons in: $^{88}_{38}Sr^{+2}$ respectively.	
	1	50 and 36	
	2	52 and 36	
	3	88 and 38	
	4	50 and 38	

5 S	1	A certain compound 'X' has been dissolved in water. The molecular weight of this compound has been 60 g mol^{-1}. If 180 g of this compound is dissolved in 54 g of water, what is the mole fraction of the compound? (Atomic weight of H = 1 g mol^{-1}, and O = 16 g mol^{-1}]).	
	1	2.3	
	2	0.5	
	3	3.3	
	4	0.2	

6 S	1	Which one of the following is **NOT** a colligative property of solution?	
	1	Melting point elevation	
	2	Osmotic pressure	
	3	Freezing point depression	
	4	Vapor pressure lowering	

7 S	1	Ambo mineral water is?	
	1	Gas-solid solution	
	2	Gas-gas solution	
	3	Liquid- liquid solution	
	4	Gas-liquid solution	

8 S	1	The process of converting pig iron into steel is called:	
	1	Refining	
	2	Oxidation	
	3	Metallurgy	
	4	Floatation	

9 S	1	In the reaction: $CoCl_2 + 6H_2O$? $Co(H2O)6Cl_2$. Then $CoCl_2$ acts as a:	
	1	Lewis acid	
	2	Salt	

		3	Brønsted base
		4	Lewis base

10 S	1	What is the role of salt bridge in an electrochemical cell?	
		1	Prevent electrical neutrality by allowing the oxidizing agent ions to the cathode
		2	Allows the direct mixing of reduced and oxidized species between the two electrodes
		3	Used as a source of power for electrochemical cell
		4	Maintain the electrical neutrality between reduced and oxidized species between the two electrodes

11 S	1	Hydrolysis of fat by sodium hydroxide is known as:	
		1	Saponification
		2	Esterification
		3	Carboxylation
		4	Hydrogenation

12 S	1	The process of hardening natural rubber by adding sulfur is termed as:	
		1	Alkalization
		2	Vulcanization
		3	Polymerization
		4	Carbonization

13 S	1	What is the molarity of 250 mL solution of 2.925 g of NaCl? (Atomic weight: Na = 23 g mol^{-1} and Cl = 35.5 g mol^{-1})	
		1	0.2 M
		2	0.1 M
		3	0.05 M
		4	0.25 M

14 S	1	Which one of the following is true?	
		1	K_a and pH have no relation
		2	pH is directly related to $[H^+]$
		3	K_a value is inversely related to pH
		4	As $[H^+]$ increases, its pH decreases

15 S	1	The conjugate base produced during the auto-ionization of liquid ammonia is:	
		1	N_2H_4
		2	NH_4^+
		3	NH_3
		4	NH_2^-

16 S	1	Based on the Gibbs free energy value, which process is spontaneous?	
		1	Not predictable
		2	?G>0
		3	?G<0
		4	?G = 0

17 S	1	Which one of the following equations shows the relationship between standard Gibbs free energy and equilibrium constant of a reaction?	
		1	$?G^0 = RT?nK$
		2	$?G^0 = -RT?nK$
		3	$K = RT?nG^0$
		4	$?G^0 = RT?nG$

18 S	1	Identity the strongest acid from the given alternatives.	
		1	HF
		2	HI
		3	HBr
		4	HCl

19 S	1	Choose a non-polar molecule with the polar bond	
		1	BF_3
		2	SO_2
		3	HCl
		4	CO

20 S	1	The possible reason that salts like sodium chloride is NOT dissolved in benzene; because:	
		1	Solute-solute interaction is less than solvent-solvent interactions
		2	Solvent-solute interaction is greater than solute-solute and solvent-solvent interactions
		3	Solvent-solute interaction is less than solute-solute and solvent-solvent interaction
		4	Solute-solute interaction is greater than solvent-solvent interaction

21 S	1	Which one of the following statement is **NOT** correct based on first laws of thermodynamics?	
		1	Energy lost by a system and gained by its surrounding is equal